

Science (Single Award)  
Physics  
PAPER: 1P

Friday 14 June 2024 – Afternoon

Time: 1 hour 10 minutes

Diagram Booklet

THIS DIAGRAM BOOKLET MUST BE RETURNED WITH THE QUESTION PAPER AT THE END OF THE EXAMINATION.

In the boxes below, write your name, centre number and candidate number.

Surname					
Other names					
Centre Number					
Candidate Number					

## **INSTRUCTIONS**

**There may be spare copies of some diagrams in case you need them.**

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Question 1

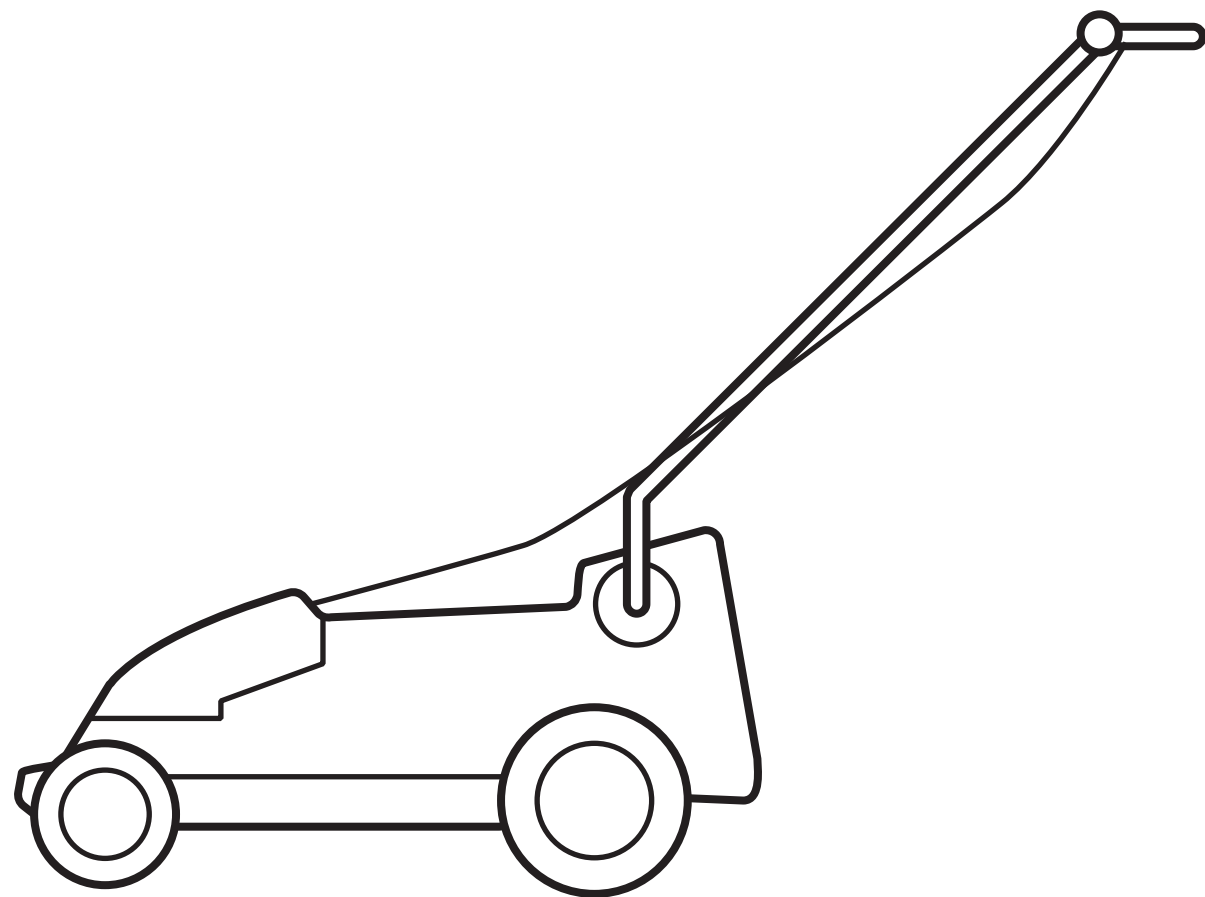
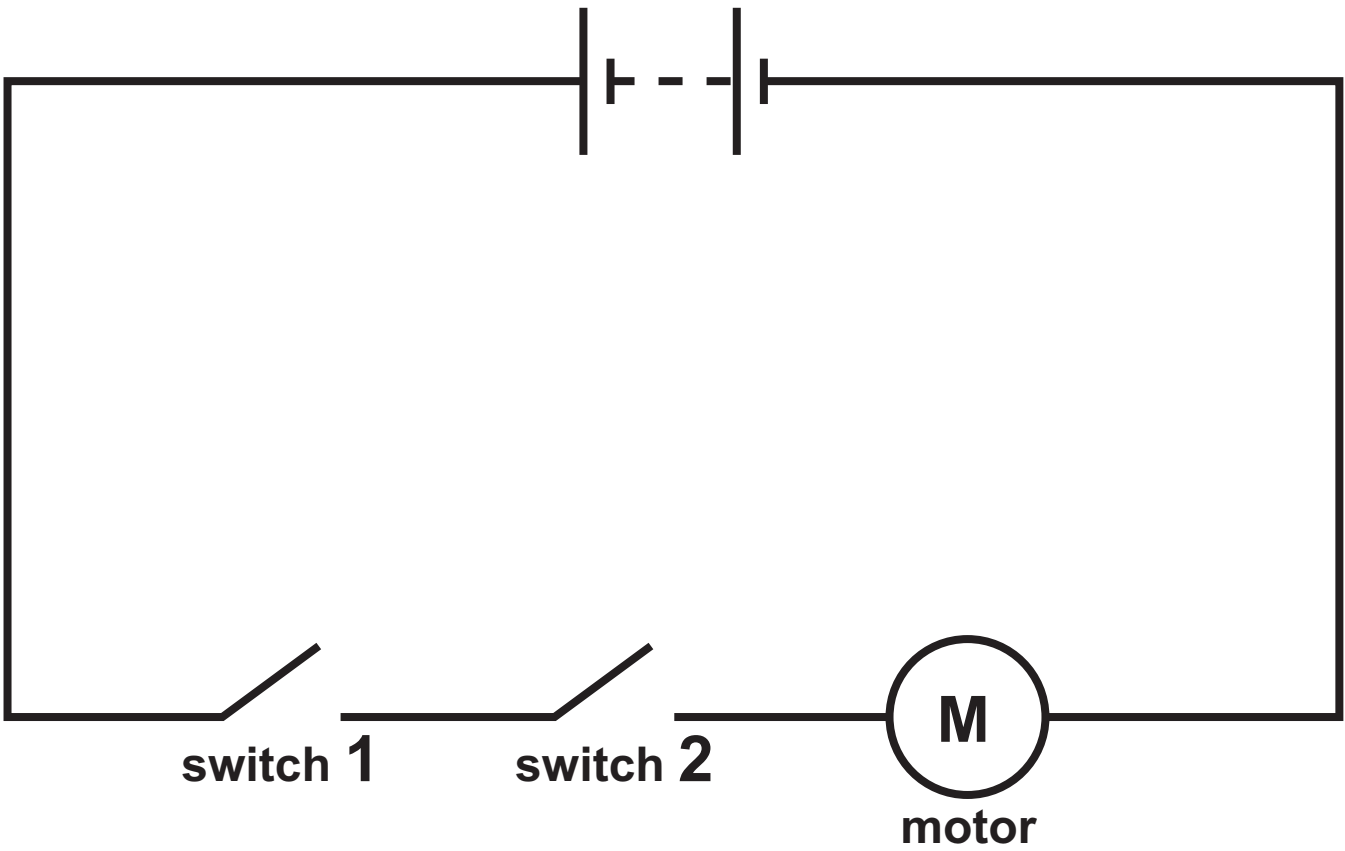
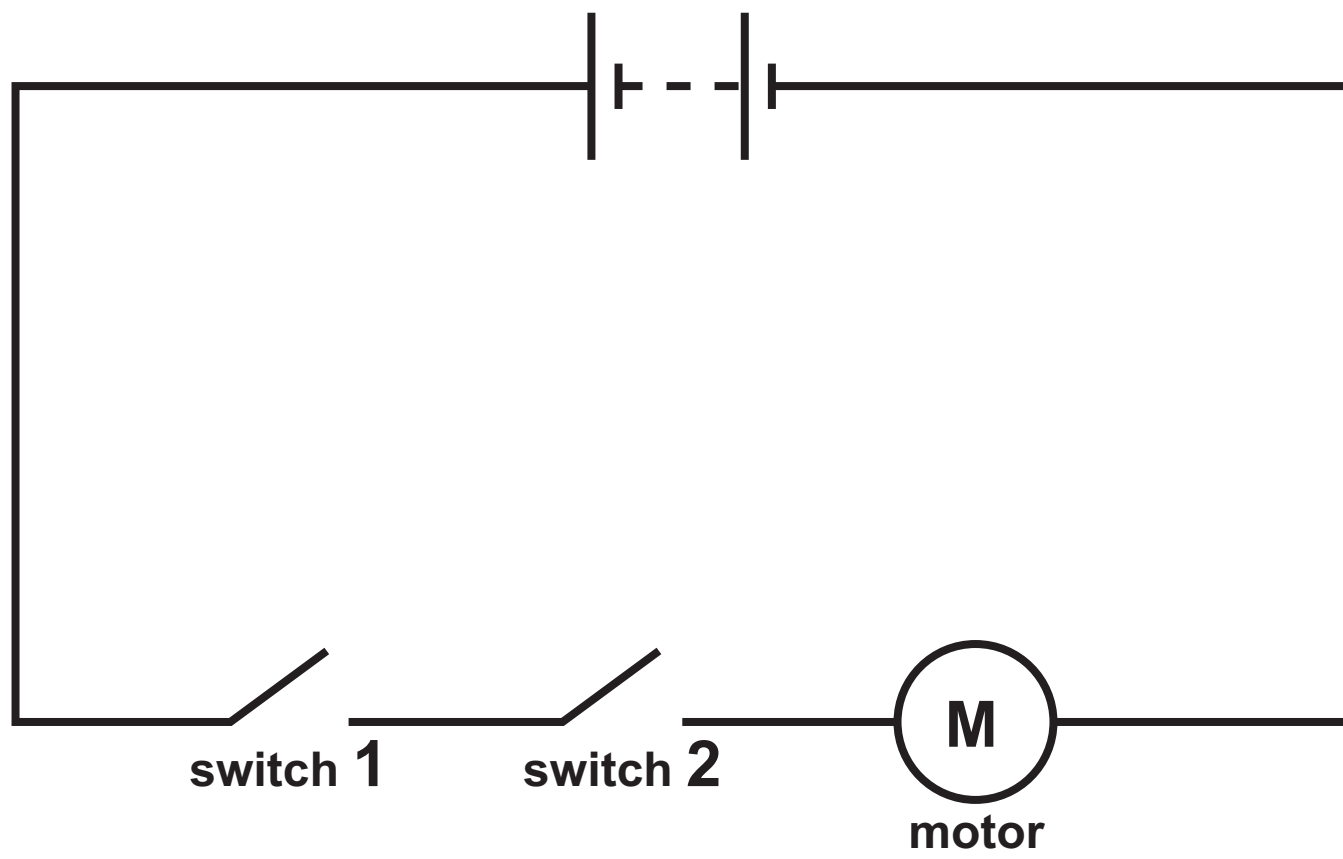


DIAGRAM 1



## Question 1(c)

DIAGRAM 2

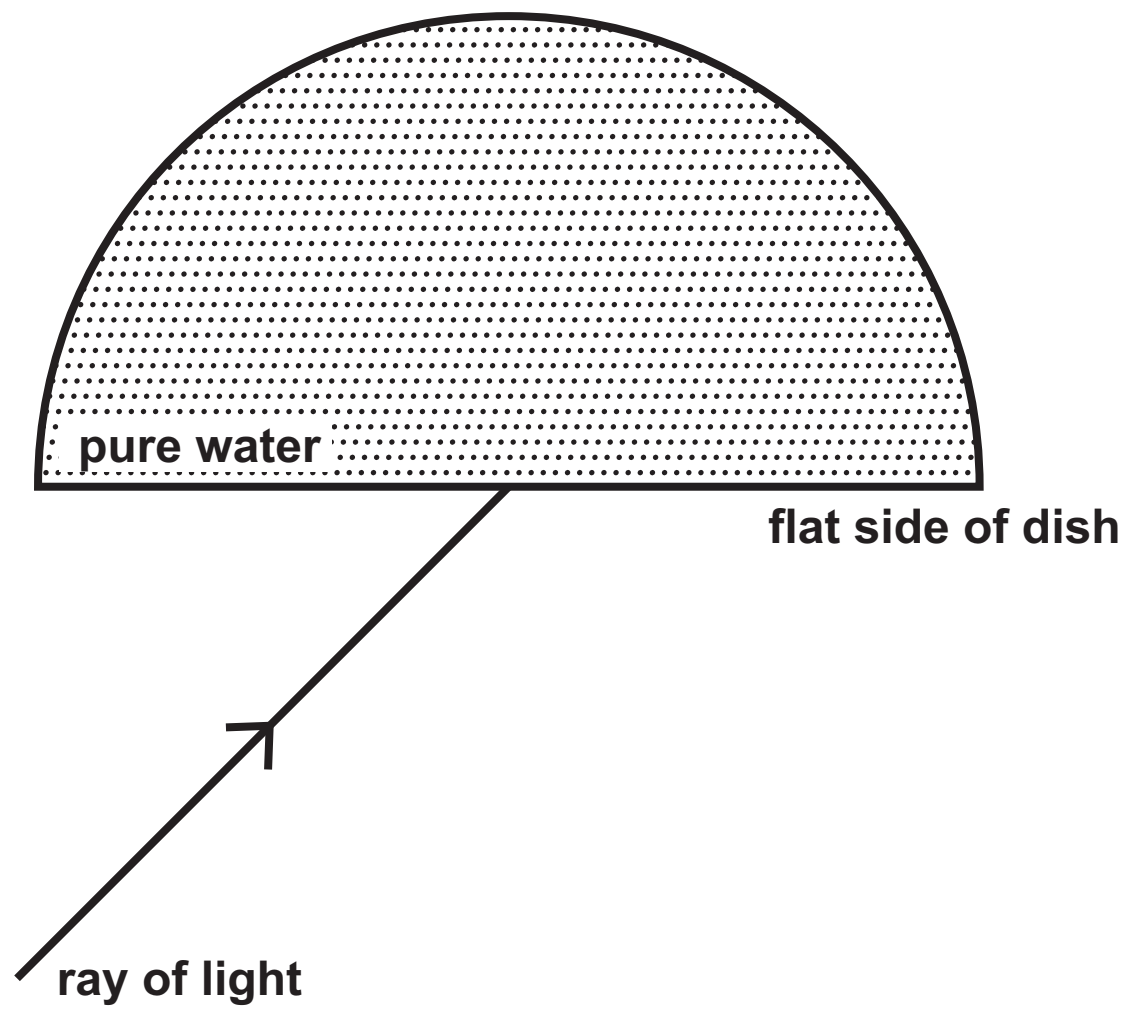


**Question 2(a) – Blank page**

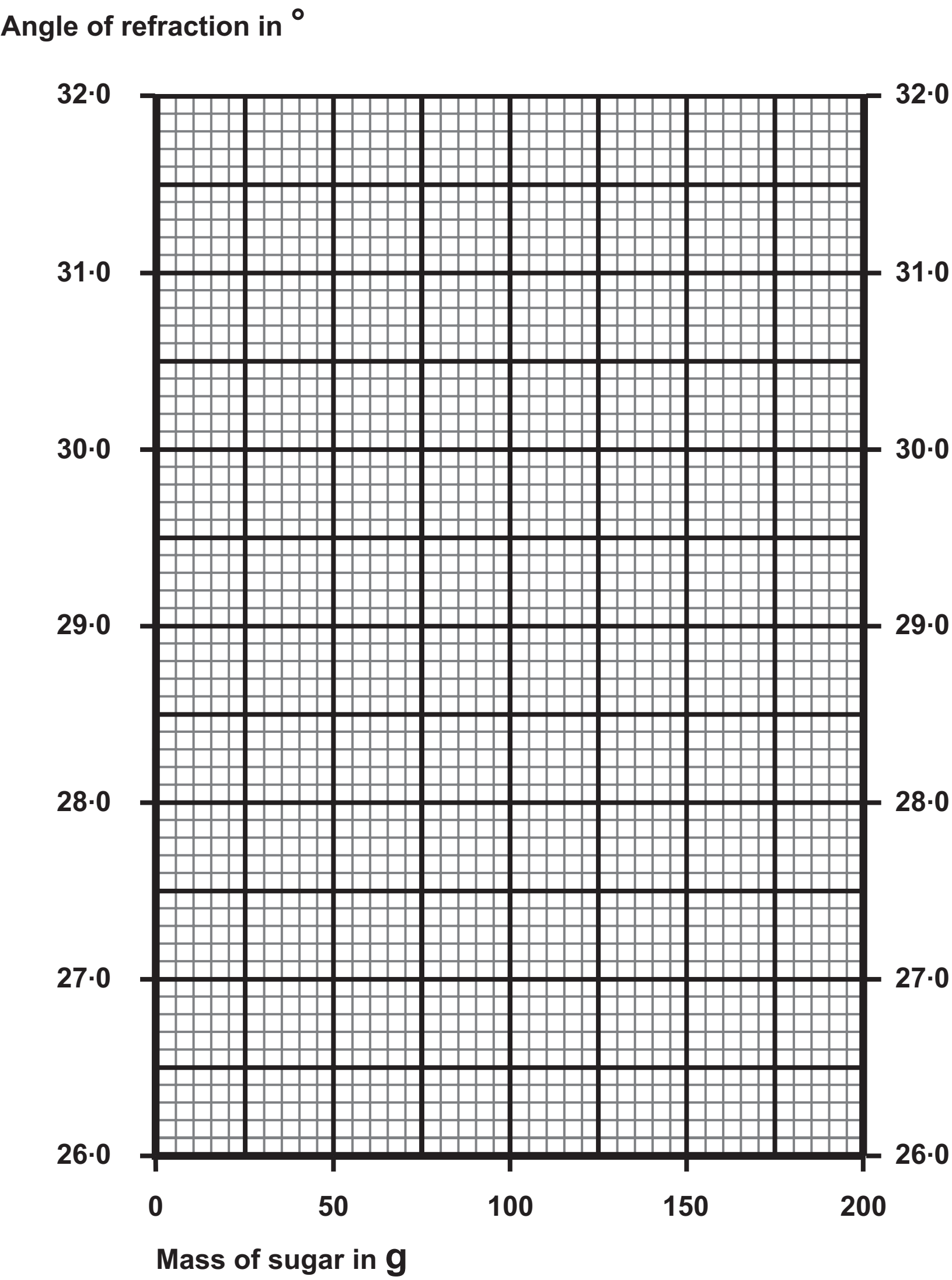
Question 3(a)

Variable	Independent	Dependent	Control
volume of water			
angle of incidence			
angle of refraction			
mass of sugar			
colour of light			

## Question 3(b)

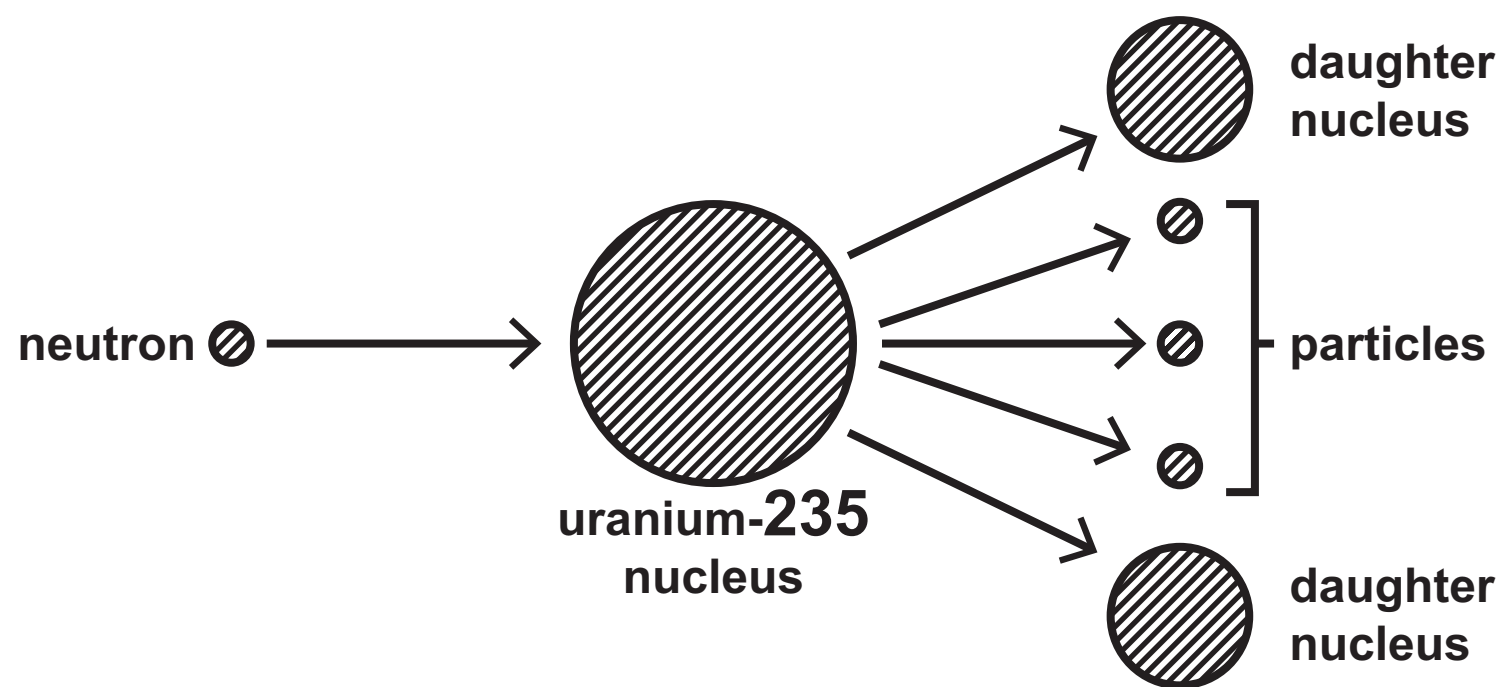


Question 3(c)



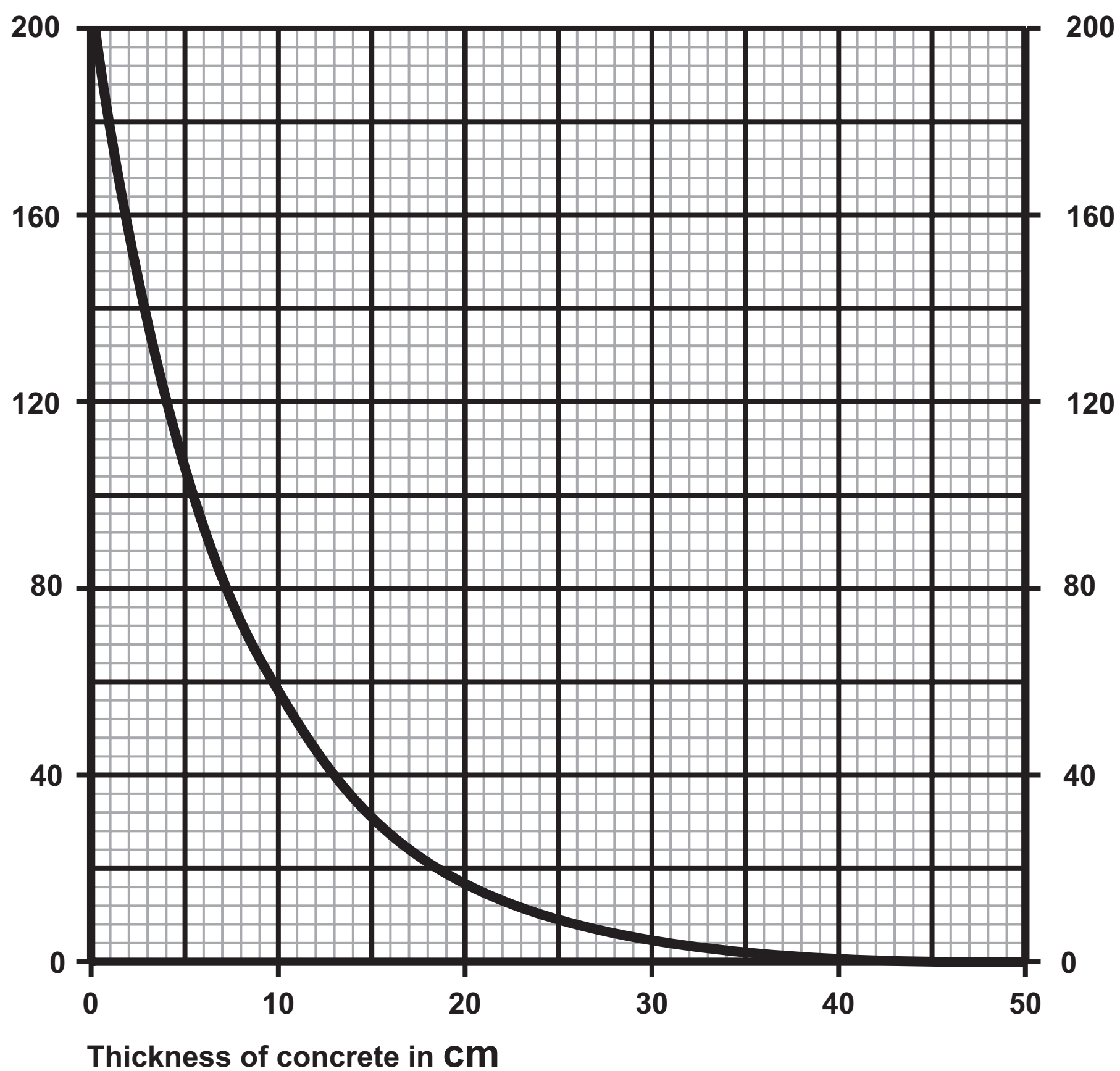


## Question 4(a)

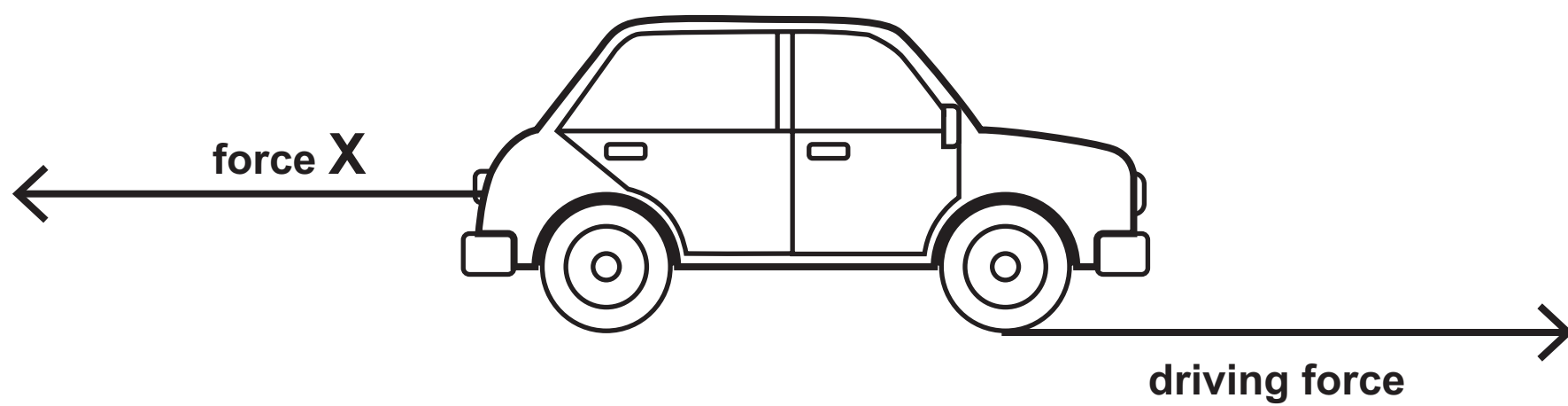


## Question 4(b)(ii)

Energy of gamma radiation  
in arbitrary units

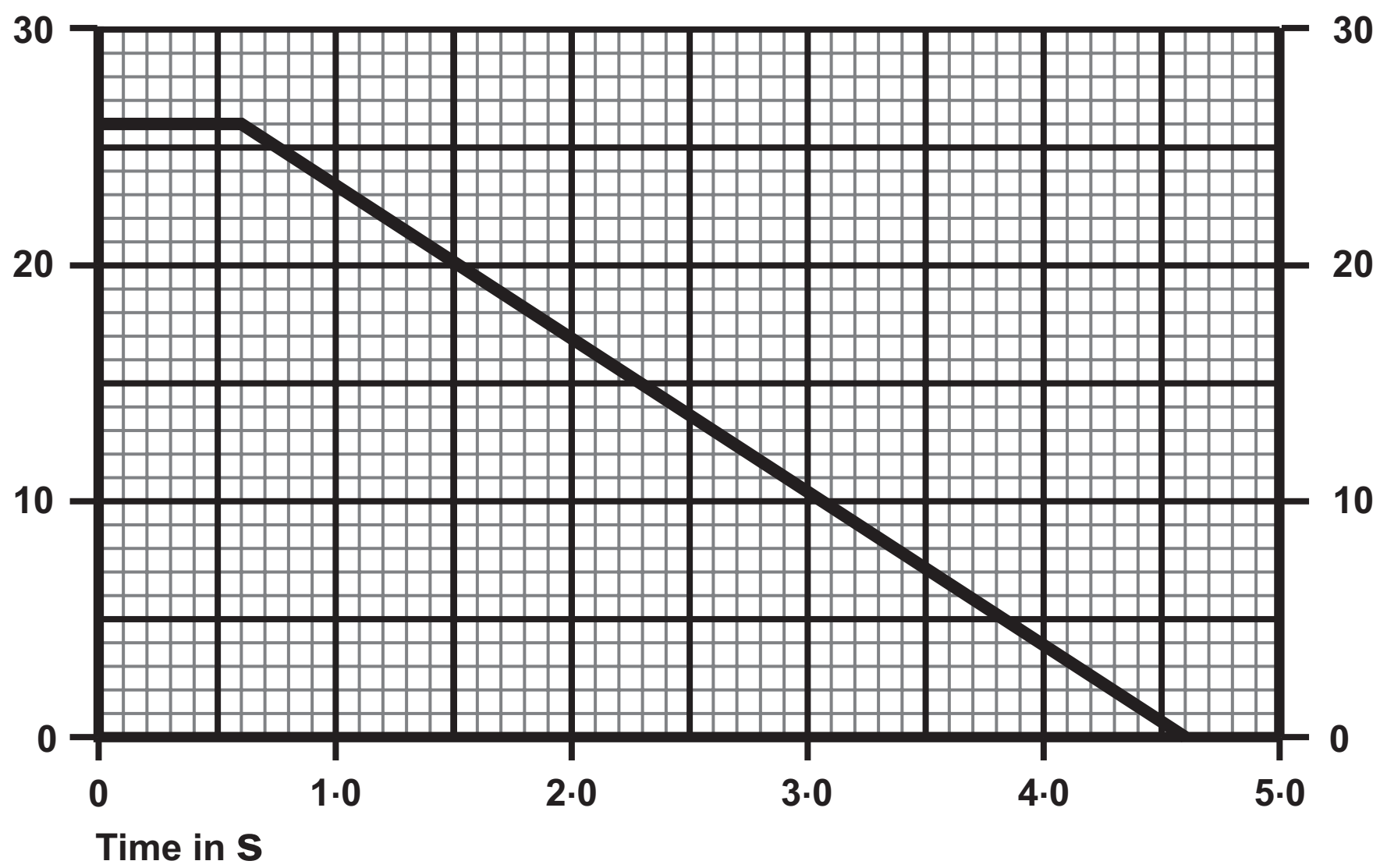


## Question 5(a)

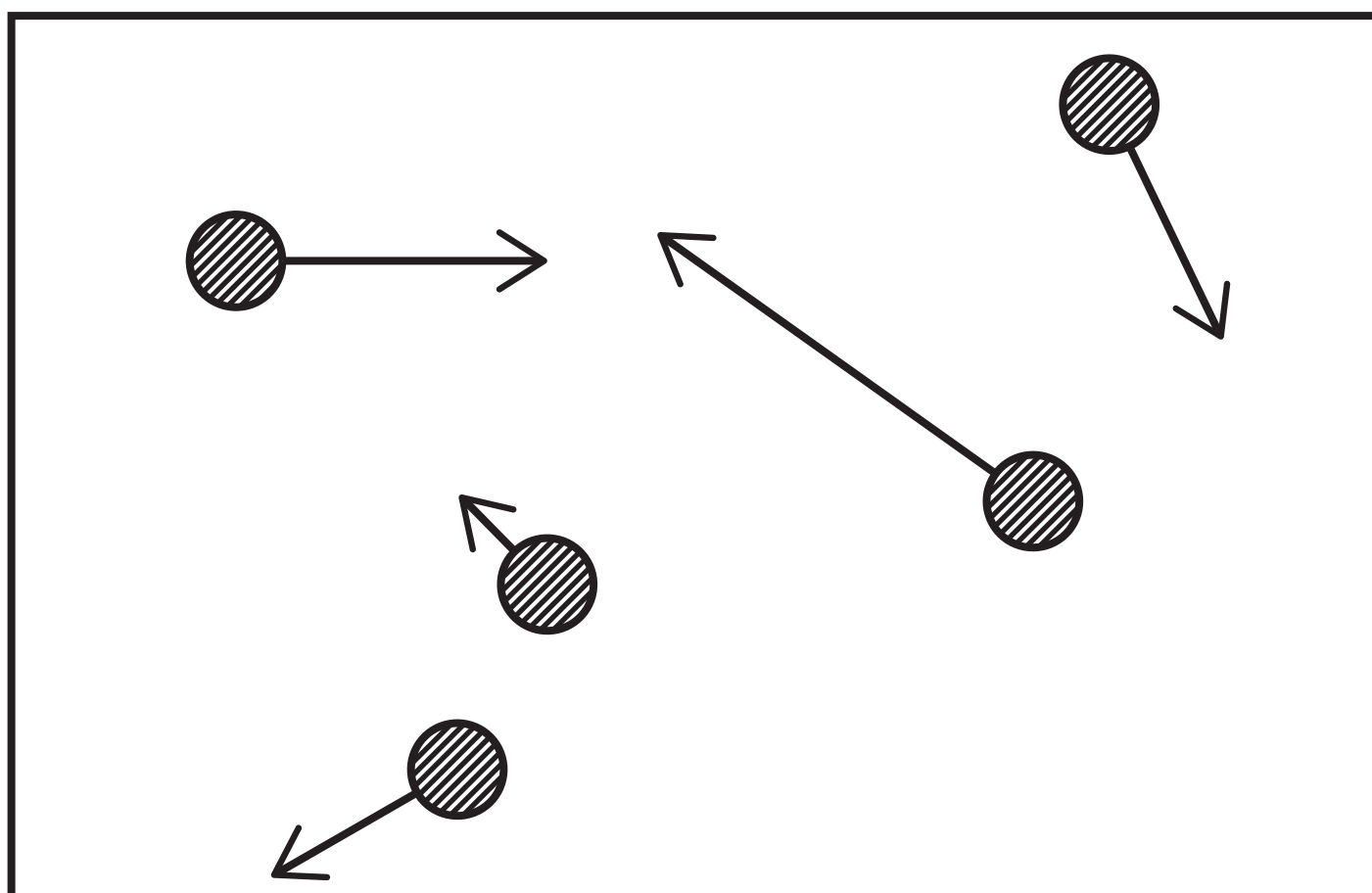


## Question 5(b)

Velocity in m/s



## Question 6(a)

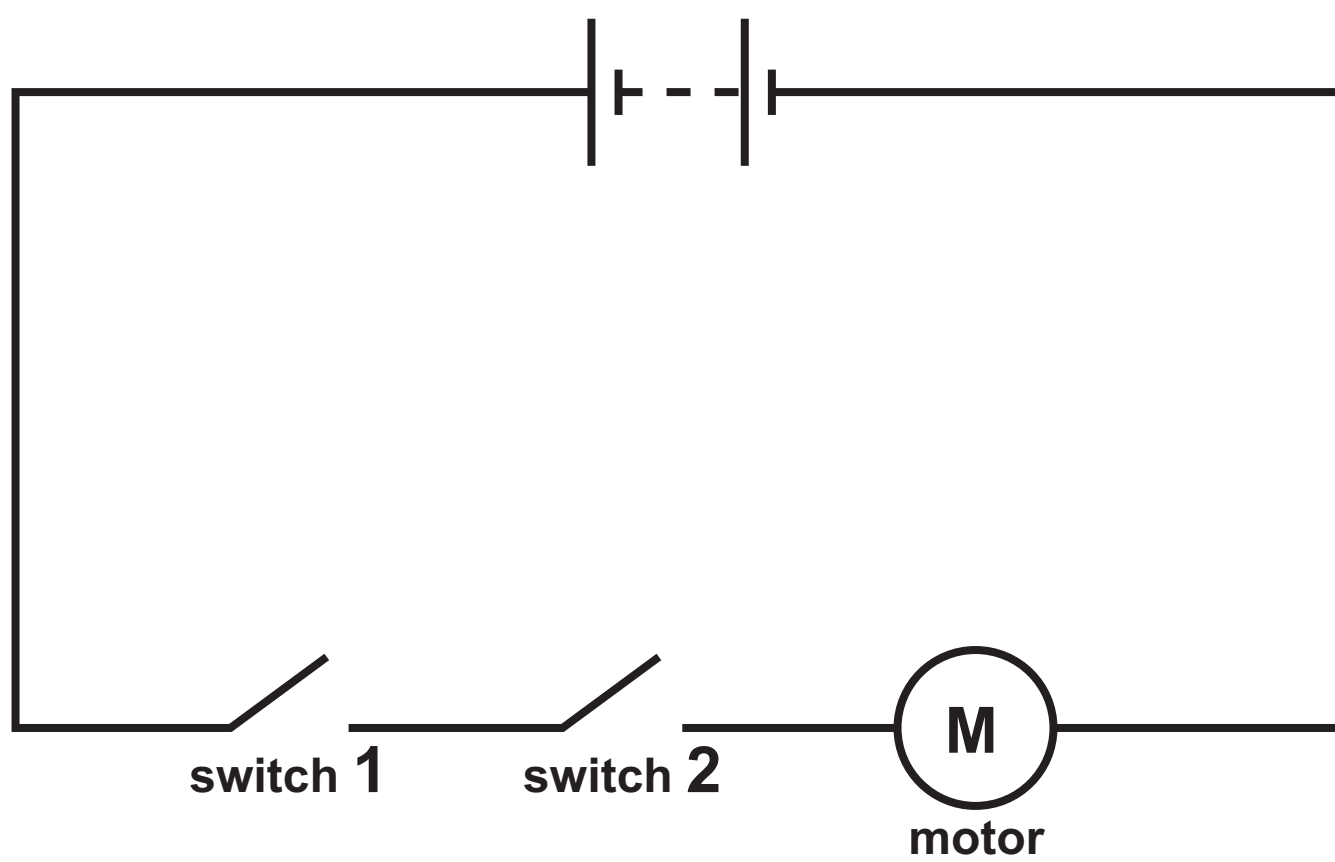


Question 6(b)

Mass of one gas particle	$7.3 \times 10^{-26} \text{ kg}$
Mean kinetic energy of one gas particle	$9.8 \times 10^{-21} \text{ J}$
Total mean kinetic energy of gas particles	$1.2 \times 10^4 \text{ J}$

## Question 1(c)

DIAGRAM 2



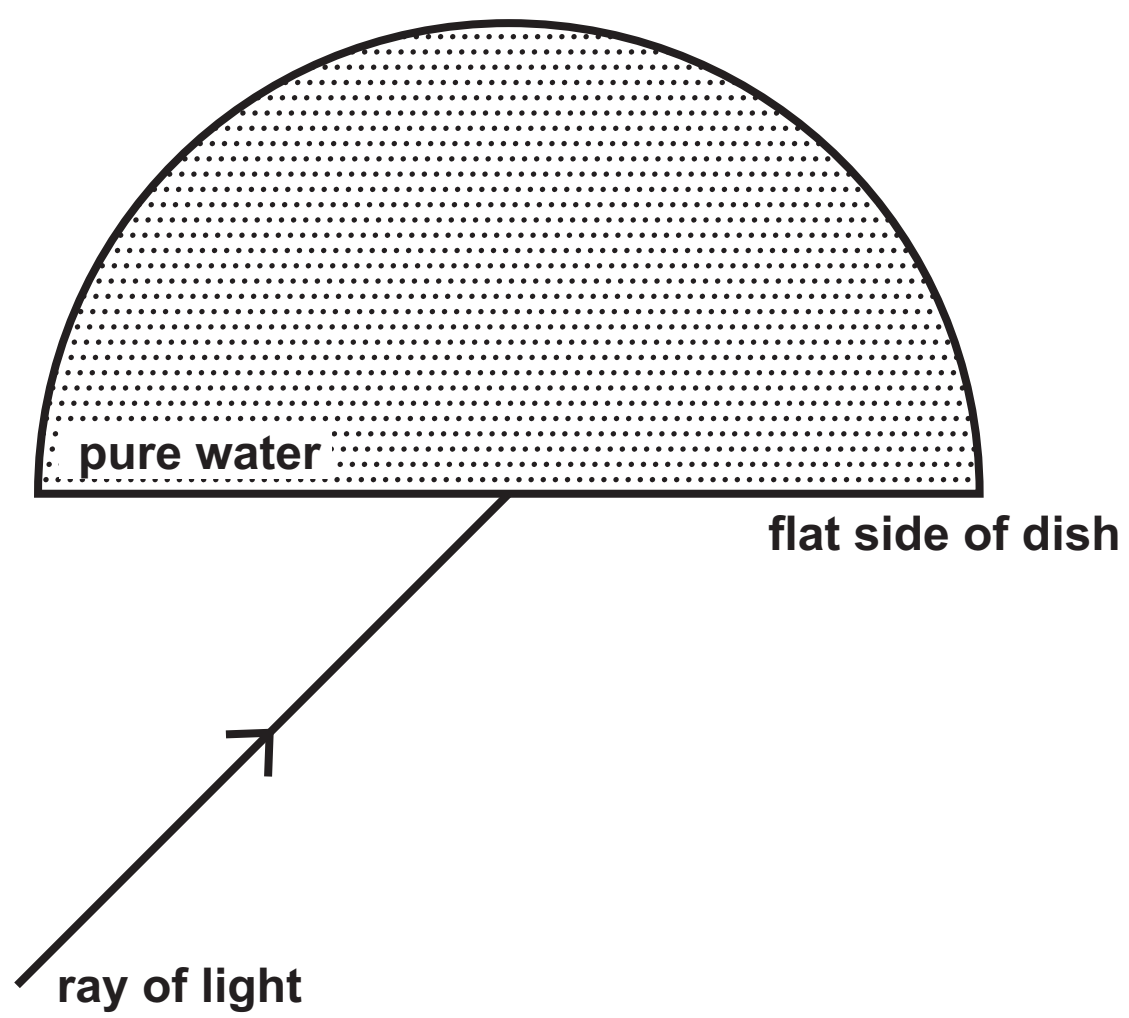
**Question 2(a) – Blank page**



Question 3(a)

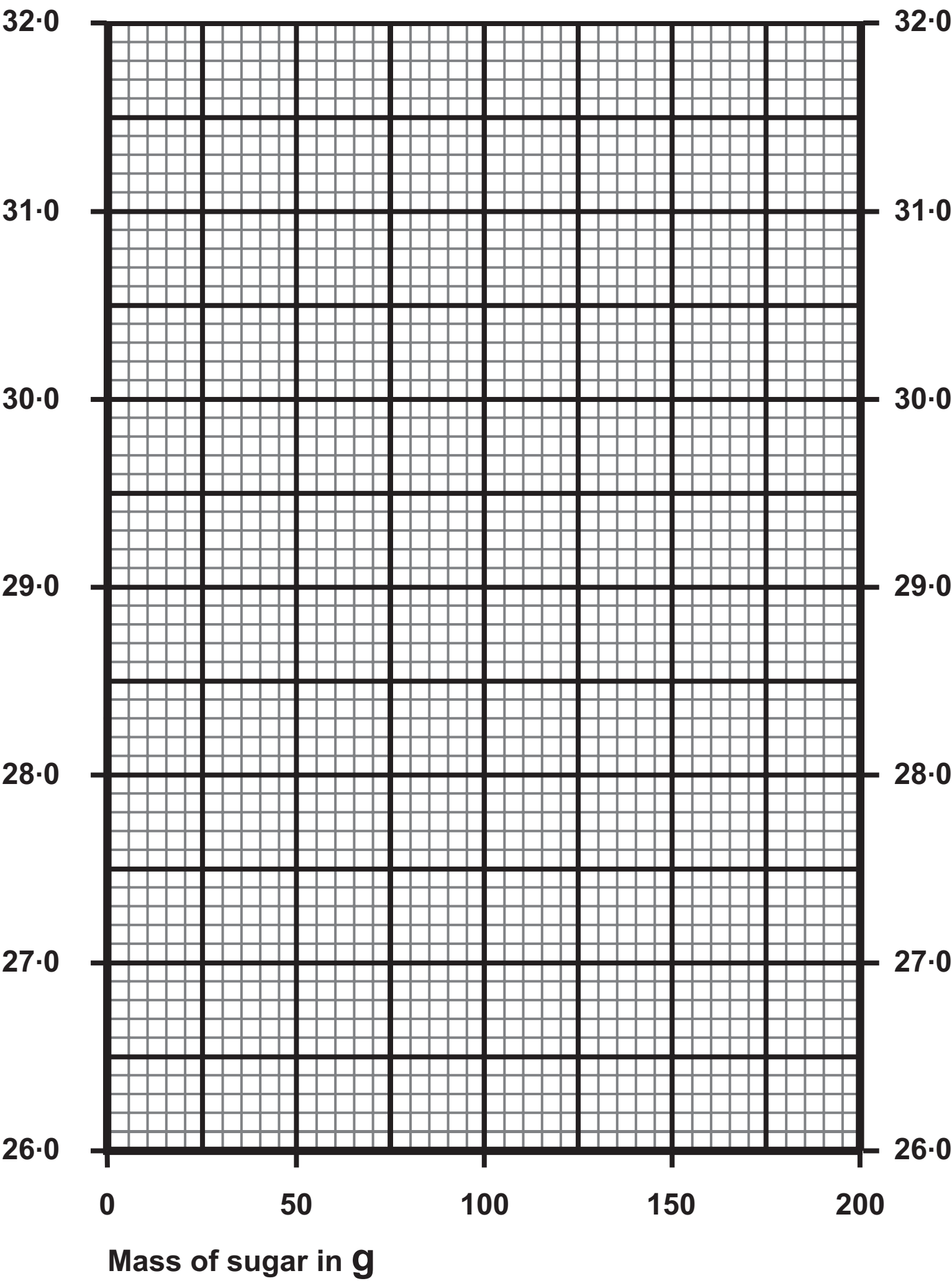
Variable	Independent	Dependent	Control
volume of water			
angle of incidence			
angle of refraction			
mass of sugar			
colour of light			

## Question 3(b)



Question 3(c)

Angle of refraction in  $^{\circ}$



**Question 1**

(Source adapted from: <https://www.shutterstock.com/image-photo/norwich-norfolk-uk-september-4-2021-2036487353>)